



Insurance 101

**Presented by
Professor Michael R. Hubbel
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**The Risk Management and Insurance Center
Olivet College**

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Instructor Bio

Michael R. Hubbel, CPCU, AU, ARM, AIM, ARP, ASLI, ARe

Michael R. Hubbel is Professor of Insurance and Risk Management, and Director of the Risk Management and Insurance Center at Olivet College. Mike earned the Bachelor of Arts Degree in Risk and Insurance at Michigan State University, and the Master of Business Administration Degree in Risk Management at The College of Insurance, now part of St. John's University in New York. He has earned the Chartered Property Casualty Underwriter designation, the Associate in Risk Management, the Associate in Underwriting, the Associate in Management, the Associate in Research and Planning, the Associate in Surplus Lines Insurance, and the Associate in Reinsurance from the American Institute for Chartered Property Casualty Underwriters and the Insurance Institute of America. Mike has over 39 years of experience in the field of insurance. He has worked with three insurance companies in the areas of research and product development, education, and government relations, his last appointment as the vice president of an insurance company. Mike has taught insurance and risk management at the undergraduate level for the College of Business at Michigan State University, The College of Insurance, and Olivet College, and at the graduate level in the professional MBA programs at Temple University and Olivet College. He has served as the Associate Director of the Center for Professional Education at The College of Insurance, designing programs for a wide variety of firms and professionals around the world. Mike has designed and conducted customized seminars for diverse audiences including professionals from Arch, Argo Group US, Chubb, Deloitte, IBM, PricewaterhouseCoopers, Risk Management Solutions, St. Paul Re, Willis, and an international management consulting firm. Mike has served on committees for the Michigan Insurance Department, the Michigan Supreme Court, and the insurance community. He has presented information to the Michigan Legislature, and lectured on the subject of the U.S. insurance industry for groups of insurance executives and regulators from all over the world. He has published articles in *Best's Review*, *On the Risk*, *The Sextant*, and *Journal of International Insurance*, and designed online insurance courses for Deloitte, IBM, Olivet College, Rhodes Online Institute, and Seton Hall University. Mike continues to conduct professional seminars for St. John's University.

Mike is the administrator of the Michigan Insurance Hall of Fame, editor of *RMI Straight Line*, vice chairman of the Board of Directors of the Westran Insurance Scholarship Foundation, a past president of the Board of Trustees of the international collegiate insurance society Gamma Iota Sigma, and past member of the advisory board for the *Journal of International Insurance*. He is a member of the Western Michigan Chapter of the Risk and Insurance Management Society, Society of Chartered Property Casualty Underwriters, International Insurance Society, American Risk and Insurance Association, and National African-American Insurance Association – Michigan Chapter.

Mike was the director of the Insurance Program at Olivet College from 1985 to 1989. He returned to Olivet in 1995 to resume his responsibilities, which include insurance and risk management education, professional seminar development, writing, and consulting. Mike also served as chair of the Department of Business Administration and Economics.

Insurance 101 Outline

1. What makes insurance companies different from other financial institutions

- a. Underwriting risk – uncertainty about timing and extent of losses
- b. Many underwriters making commitments
- c. “Cost of Goods Sold” not known until after the sale

2. Insurance

- a. The insurance mechanism [slide 1]
 - i. Transfer of risk
 - ii. Pooling of losses
 - 1. Application of “law of large numbers”
 - 2. Class rating systems
 - 3. Actuarial equity v. social equity
 - iii. Spread of risk
- b. The insurance chain – different entities involved [slides 2, 3, 4, 5]
- c. The policy life cycle – different functions/activities involved [slides 6, 7]
 - i. Core activities:
 - 1. Actuarial – ratemaking, reserving [slide 8]
 - 2. Distribution – agents, direct, Internet [slide 9]
 - 3. Underwriting – risk selection, pricing [slide 10]
 - 4. Claims – claims investigation, settlement [slide 11]
- d. Standard & manuscripted policies
- e. The major lines of insurance [slides 13 – 19]

3. Regulation of insurance [slides 21, 22]

- a. State government [slide 23]
 - i. Solvency
 - ii. Market Conduct
 - 1. Rates
 - 2. Policy language
 - 3. Trade practices
 - 4. Consumer assistance
- b. Federal government [slide 24]
 - i. McCarran-Ferguson – “who’s in charge?”
 - ii. Federal Insurance Office
 - 1. Information gathering and identify potential exposure to systemic risk in the insurance business
 - a. May address increased federal regulation of insurance
 - b. May identify areas underserved by insurance
 - 2. Represent the US in international agreements that involve insurance
- c. National Association of Insurance Commissioners [slide 25]
 - i. Financial statement design
 - ii. Insurance Regulatory Information System

- iii. Model laws & accreditation
- d. Rating Agencies
 - i. A.M. Best Company – rates the most insurers
 - ii. Standard & Poors
 - iii. Moody's
 - iv. Wiess – quantitative analysis only
 - v. Demotech – mostly Midwestern insurers

4. Financial Aspects of Insurance Companies

- a. Unique characteristics of financial statements
 - i. Statutory Accounting Principles (SAP) v. Generally Accepted Accounting Principles (GAAP)
 - 1. SAP – conservative; liquidation value; GAAP – value of a business as an ongoing concern
 - 2. Admitted assets – under SAP, only assets easily liquidated for cash may be counted in determining the financial strength of an insurance company
 - 3. Acquisition expenses – not amortized under SAP
- b. Income statement – Property & Casualty: [slides 27, 29]
 - i. “Top half” – earned premium, incurred losses, underwriting expenses
 - ii. “Bottom half” – investment income, overall net income/loss
- c. Balance sheet [slides 28, 30, 31]
 - i. Assets – investment profile
 - ii. Liabilities – loss/policy reserves, unearned premium reserves
 - iii. Net Worth – policyholders' surplus
- d. Loss reserving – Property & Casualty: [slides 32 – 36]
 - i. Calculation of losses incurred but not reported [slide 35]
 - ii. Primary cause of insurance company failures [slides 37 – 38]

5. Financial performance of the industry¹ [slides 40 - 49]

PC Profitability %	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
Loss & LAE Ratio	72.6	77.1	67.8	65.5	75.5	73.5	75.0	81.5	88.4	81.3
Expense Ratio	27.9	27.4	27.1	26.1	25.4	24.9	24.6	25.1	26.5	27.4
Dividend Ratio	0.6	0.6	0.6	0.9	0.6	0.5	0.5	0.6	0.8	1.5
Combined Ratio	101.1	105.1	95.5	92.5	101.5	98.9	100.1	107.2	115.7	110.2
Net Investment Income Ratio	11.7	12.1	12.7	12.2	12.0	9.7	10.2	11.3	12.3	14.1
Overall Operating Ratio	89.4	93.0	82.8	80.3	89.5	89.2	89.9	95.9	103.4	96.1

¹ Best's Aggregates & Averages P&C and L&H, A.M. Best Company, 2010

LH Profitability (1 year) %	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
Return on Assets	1.05	-0.02	0.68	0.68	0.77	0.83	0.88	.59	.49	.73
Return on Equity	18.0	-0.3	12.6	12.4	13.5	14.4	15.1	10.2	8.4	12.6
Return on Revenue	6.4	-0.1	4.1	3.9	4.5	4.4	4.5	2.8	2.4	3.0
Published Lapse Ratio	6.6	7.2	6.5	5.9	6.8	7.2	6.8	7.6	8.3	7.6

Leverage %

Reinsurance Leverage	157.0	167.8	139.8	134.0	125.2	119.0	109.0	102.7	94.6	79.1
Total Capital to Liabilities	6.9	6.5	6.8	6.8	6.9	7.1	7.1	7.1	7.3	7.8
% Change in NPW	-17.8	2.4	7.4	9.0	-2.4	6.1	-0.2	5.7	4.5	11.7
NPW to Total Capital	2.0	2.7	2.3	2.3	2.2	2.3	2.0	2.3	2.1	2.4

Liquidity %

Quick Liquidity	48.8	48.3	47.7	49.0	49.6	49.3	48.7	48.5	46.1	46.7
Current Liquidity	63.0	62.4	62.7	63.8	64.0	63.7	62.5	61.7	60.5	62.1
Mortgage & RE/Total Capital	127.2	128.8	108.6	108.5	109.3	108.6	113.8	124.4	122.5	115.9

Return on Equity	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
Property & Casualty	7.3	4.4	12.3	12.2	9.6	9.4	8.9	2.2	-1.2	5.9
Life & Health	18.0	-0.3	12.6	12.4	13.5	11.0	9.0	1.0	7.0	10.0
Fortune 500 ²	10.0*	13.1	15.2	15.4	14.9	13.9	12.6	10.0	10.4	14.6

*Estimated

PC Capacity %	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
WP to Surplus	82	93	84	91	100	109	118	131	112	94

² Insurance Information Institute

6. The Insurance Market Cycle

- a. What drives the cycle?
 - i. Competition [slide 51 – 58]
 1. concentration – low [slide 52]
 2. barriers to entry – low
 3. nature of “product” – homogeneous from buyer’s perspective
 - ii. Influences on the cycle [slide 61]
 1. Profit
 2. Supply (Capital)
- b. Where are we now?
 - i. Market segments [slide 59]
 1. Hard – high prices, less availability, limited coverage
 2. Soft – low prices, very available, broad coverage
 3. The cycles
 - a. General market [slide 59]
 - b. Line of business [slide 64]
 - c. Geographic
 - d. Account size
 - ii. Prolonged soft market
 1. Under-reserving? [slide 60]
- c. How can we monitor it? [slides 61 - 64]
 - i. Influences on changes in profitability and surplus
 - ii. Current factors that will influence the length and depth of the cycle³
 - **Capacity** – no cause for change here
 - Rapid surplus growth in recent years has left the industry with between \$85 billion and \$100 billion in excess capital, according to analysts
 - Insurer & reinsurer capital in Bermuda increased over \$17 billion in 2009⁴
 - All else equal, rising capital leads to greater price competition and a liberalization of terms and conditions
 - **Reserves** – no pressure to change here
 - Adequacy has improved in last decade
 - Some releases due to redundancy; releases diminishing
 - Concerns that some insurers might under-reserve to show continued profitability
 - **Investment gains** – no pressure here
 - Strong prior to 2008
 - Limited exposure to decline in stock value – not a

³ Hartwig, Ph.D., Robert P., “The Insurance Cycle and Credit Crunch: Impacts & Implications for the P/C Insurance Industry,” CAS Ratemaking Seminar, Boston, March 18, 2008; updates added by Hubbel.

⁴ Sclafane, Susanne “More Capital Washes Up In Bermuda,” P&C National Underwriter, March 8, 2010.

significant negative impact on surplus, capacity, and supply

- **Rating agencies** – could lead to a hardening
 - Quicker to downgrade insurers
 - Standard & Poor's incorporating an assessment of an insurer's enterprise risk management practices
- **Technology** – could help prolong soft market
 - Improvements leading to cost efficiencies, more accurate information for decision making and pricing, faster pricing adjustments
- **Analysts/Investors** – no pressure to harden here
 - Less focused on growth, more attention to ROE
- **Regulation** – may encourage a hardening
 - Some uncertainty about SOX, Gramm-Leach-Bliley, Federal regulation
- **Sarbanes-Oxley** – Presumably SOX will lead to better and more conservative management of company finances, including rapid recognition of deficient or redundant reserves
 - With more “eyes” on the industry, the theory is that cyclical swings should shrink
 - Changes may be made to this law
- **International Accounting Standards** – not expected to influence the current cycle
 - Currently planned for 2015; currently includes the discounting of loss reserves, which could lead to inadequate reserves in the future
- **Terrorism Risk Insurance Act (TRIA)** – may encourage a hardening in large commercial property markets
 - Administration's new budget reduces amount of backing – but it's been restored before
- **Inflation?** – if it returns, it may encourage hardening
 - Would drive up costs of claims, lower profitability
 - Retentions and deductibles burned through quicker
- **The next major catastrophe** – when it happens, it will have significant influence on hardening the market

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A.M. Best Company (ratings and publications): <http://www.ambest.com>

American College (Chartered Life Underwriter, Chartered Financial Analyst, Certified Financial Planner, Registered Health Underwriter): <http://theamericancollege.edu>

American Council of Life Insurers: <http://www.acli.com>

American Institute for Chartered Property Casualty Underwriters and Insurance Institute of America (for excellent education materials): <http://www.aicpcu.org/>

American Risk and Insurance Association (of risk and insurance academics; research information): <http://www.aria.org/>

Business Insurance: <http://www.businessinsurance.com/>

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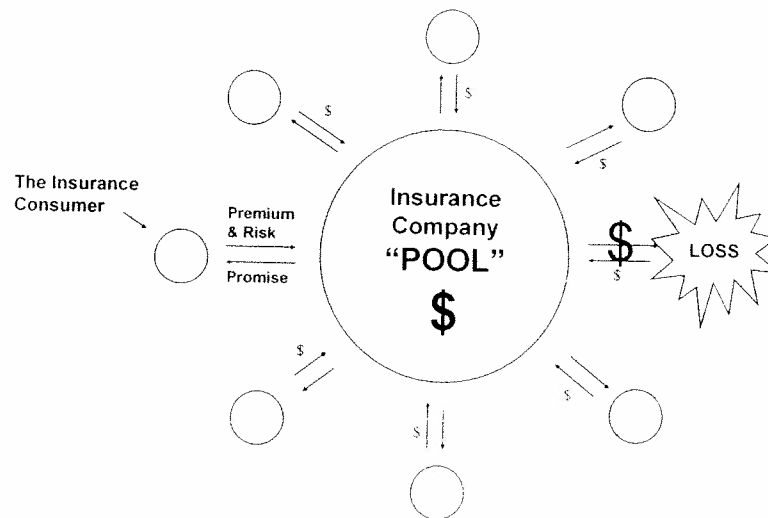
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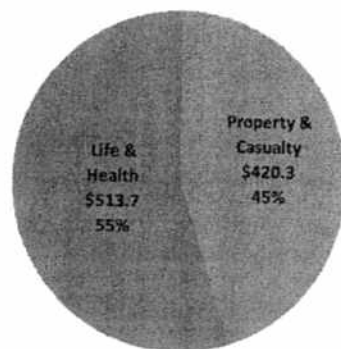
The Insurance Mechanism



1

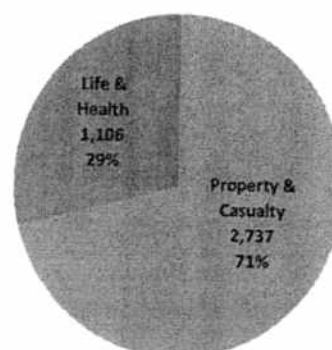
U.S. L&H and P&C Markets 2009

Premium



NPW USD billions

Number of Insurers

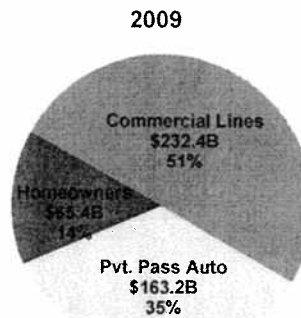


Insurance Information Institute 2011

2

P&C Personal v. Commercial Market Share

- Personal/Commercial lines split has been about 50/50 for many years; Personal Lines likely overtook Commercial Lines in 2010
- Pvt. Passenger Auto is by far the largest line of insurance and is currently the most important source of industry profits
- Billions of additional dollars in homeowners insurance premiums are written by state-run residual market plans



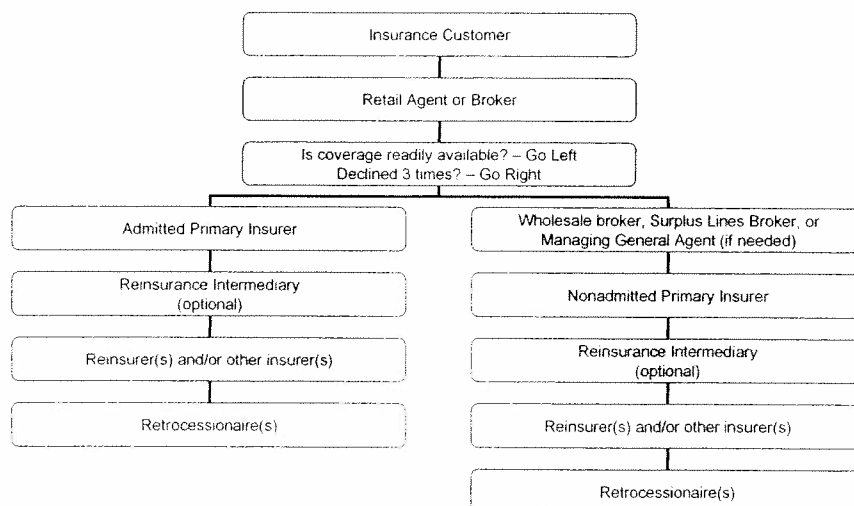
Direct Premium Written, 2009

A.M. Best, Insurance Information Institute Research

3

3

The Insurance Chain



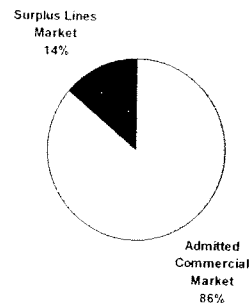
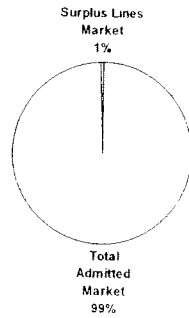
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Surplus Lines Insurance Market

"The Less Regulated Market"

Compared to Total US Market

Compared to US Commercial Market

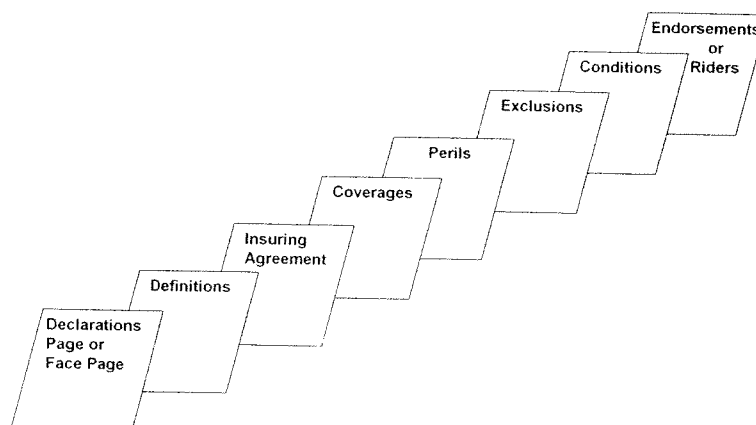


2009 Direct Written Premium

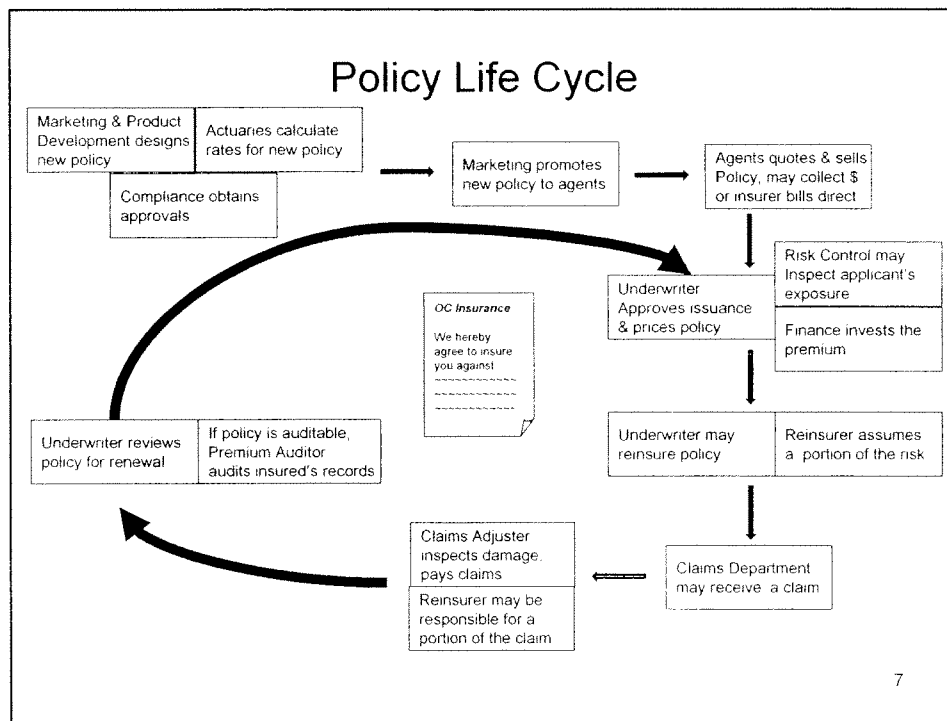
Best's Aggregates & Averages P&C, 2010. Best's 2010 U.S. Surplus Lines Market Review

5

The Insurance Policy



6



Core Activity: Actuarial

- Data gathering and Rate making

$$\frac{\text{Losses}}{\text{Exposure Units}} + \text{Expense Loading} + \text{Profit Loading} = \text{Rate}$$

$$\text{Rate} \times \text{Exposure Unit} = \text{Premium}$$

- Class rating and Judgment rating
- Regulator filings
- Loss reserving
- Management reports

8

Core Activity: Distribution

Method	Represents	Independent Contractor or Employee	Compensation	Binding Authority	Owns Expiration Rights (Customer List)	Benefit to Insurer
Independent Agent	One or more insurers	Independent contractor	Commission	Yes, under contract	Yes	Agency established in a market
Exclusive Agent	One insurer	Independent contractor	Commission	Yes, under contract	No	Economies; brand control
Direct Writer	One insurer	Employee of insurer	Salary; possible bonus	Yes	No	Economies; brand control
Direct Response	One insurer	Internet, phone, or mail	n/a	n/a	n/a	Lower cost; brand control
Broker	Insured	Independent contractor	Commission/sometimes fee	No	Yes	

9

Core Activity: Underwriting

- Risk selection
- Risk pricing
 - **Rate x Exposure Unit = Premium**
- Determine policy terms & conditions
- Reinsurance

10

Core Activity: Claims

- Investigate & settle losses
- Reserving
- Rehabilitation
- Subrogation
- Salvage

11

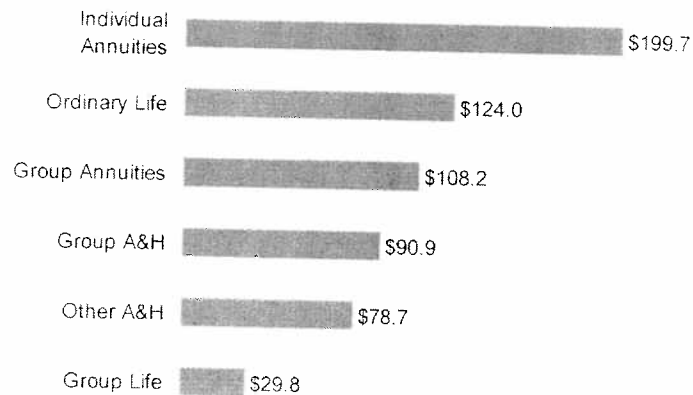
Claims Adjusters

Type	Represents	Independent Contractor or Employee	Compensation	When Used
Staff Adjuster – Inside	Insurer	Employee	Salary	Simple First-Party Claims
Staff Adjuster – Outside	Insurer	Employee	Salary	Complicated First-Party & All Third-Party Claims
Independent Adjuster	Insurer	Independent Contractor	Fee	Overload of insurer, special expertise, remote location
Public Adjuster	Insured	Independent Contractor	Percentage of Settlement (typically 10%)	Large, complex claims, when insured doesn't have time to negotiate settlement
Agent	Insurer	Independent Contractor	Part of Service under policy (commission)	Trusted agents. For very small first-party claims

12

Major lines of L&H Insurance

Based on 2009 direct premiums; in billions

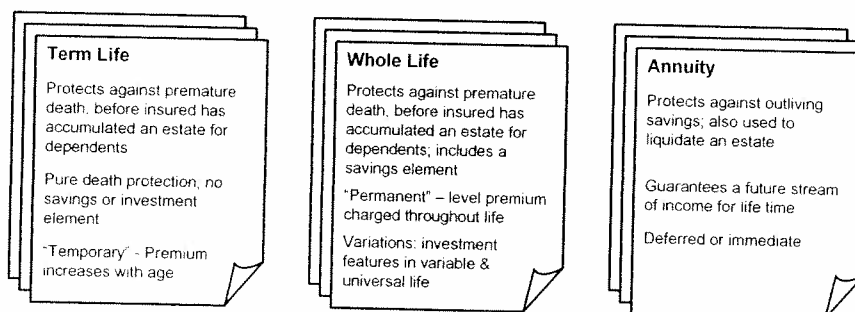


Best's Aggregates and Averages L&H, A.M. Best 2010

13

Generic Life Insurance Policies

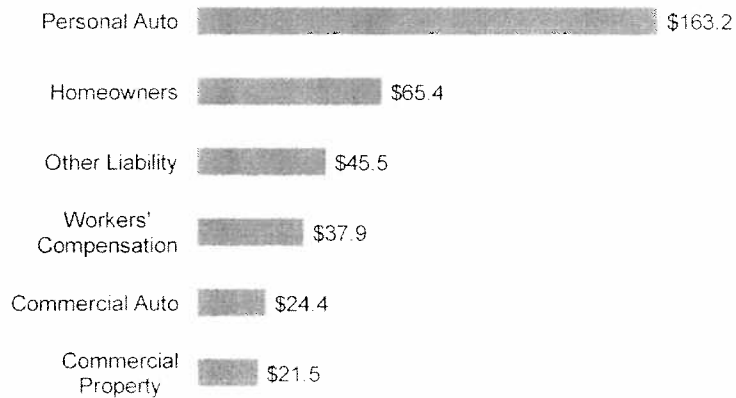
Tend not to be standard; Many variations exist



14

Major lines of P&C Insurance

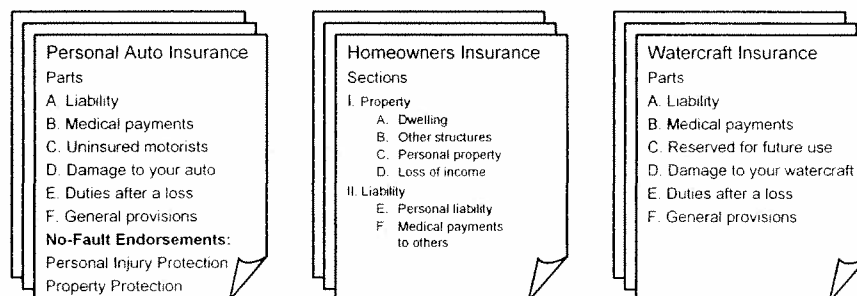
Based on 2009 direct premium written; in billions



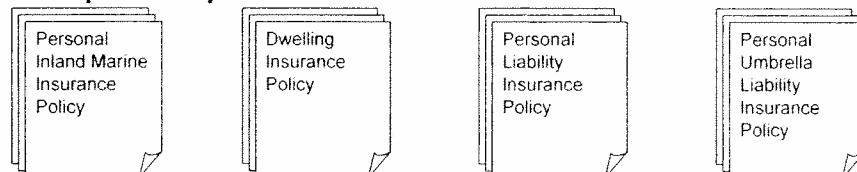
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Insurance Services Office Personal Package Policies

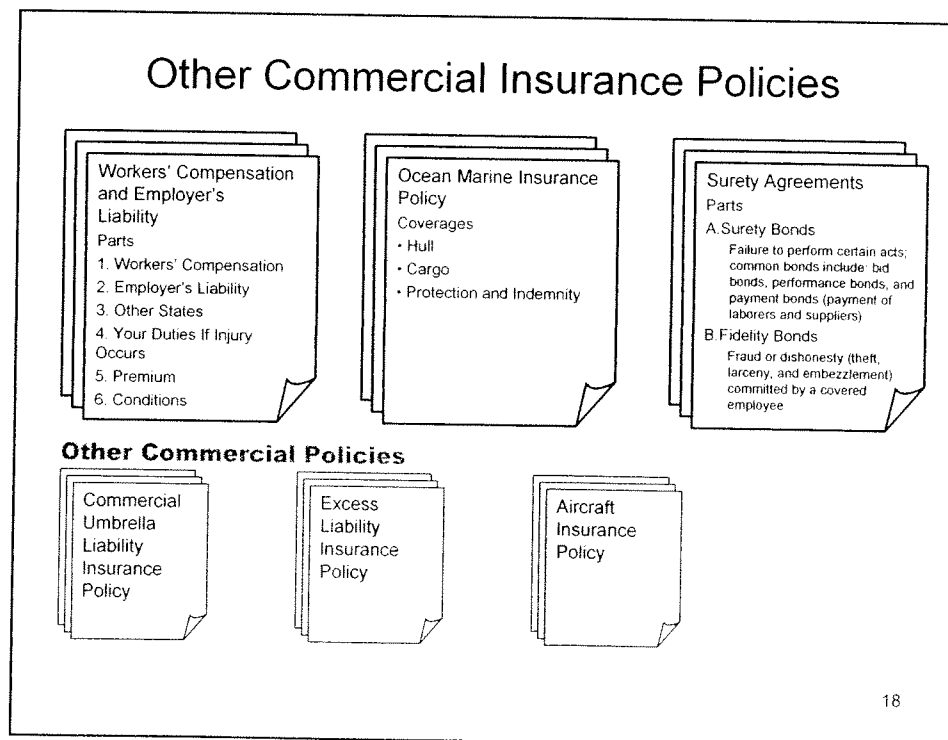
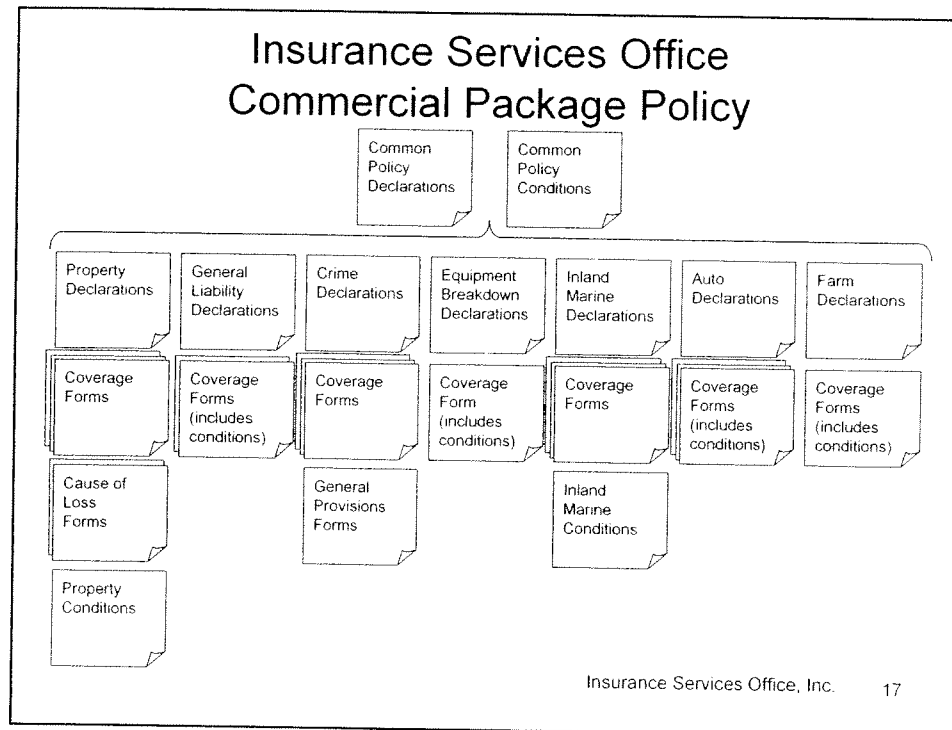


Other personal policies

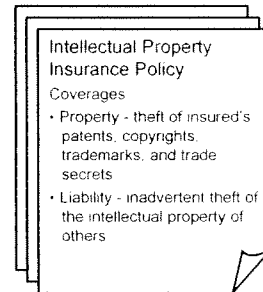
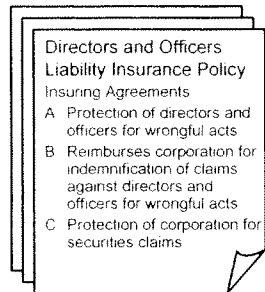
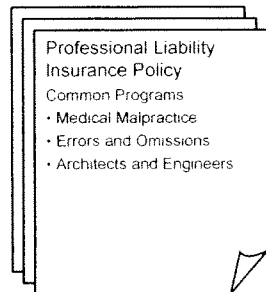


Insurance Services Office, Inc.

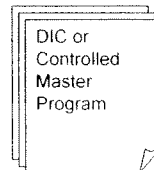
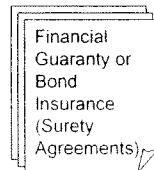
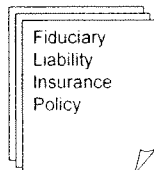
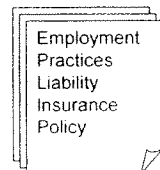
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Specialty Product Lines



Other Specialty Products

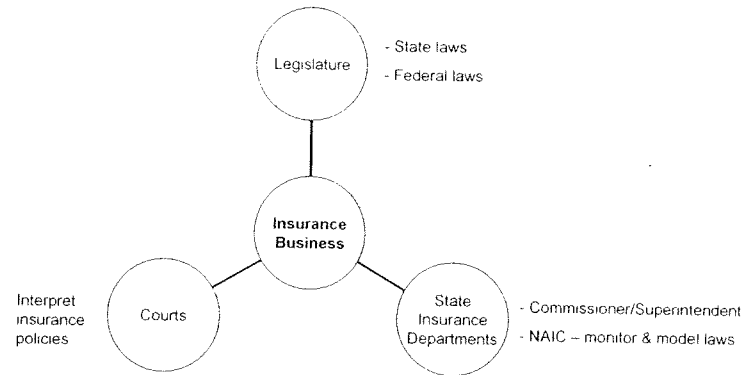


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Regulation of Insurance

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Methods of regulating insurance



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Who's in charge?



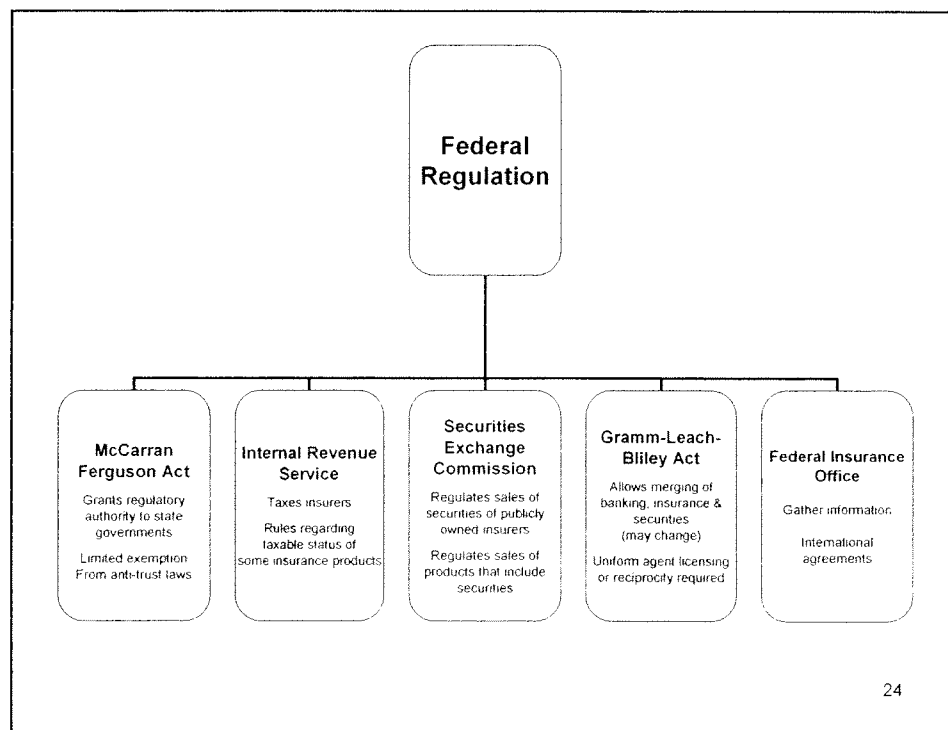
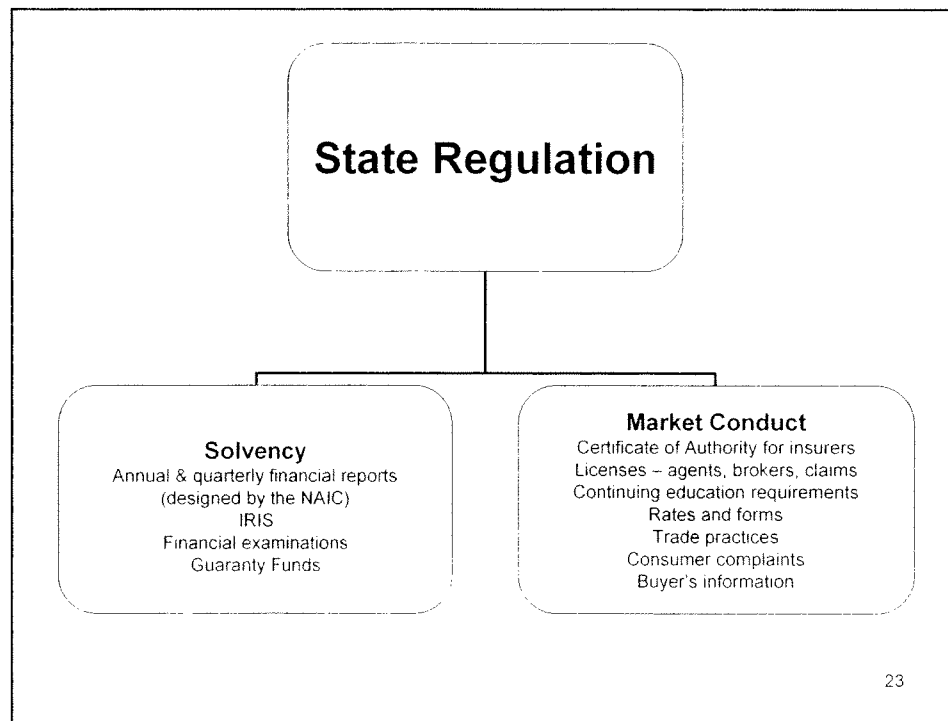
1869 – “Insurance is **not** interstate commerce; the states shall regulate.”

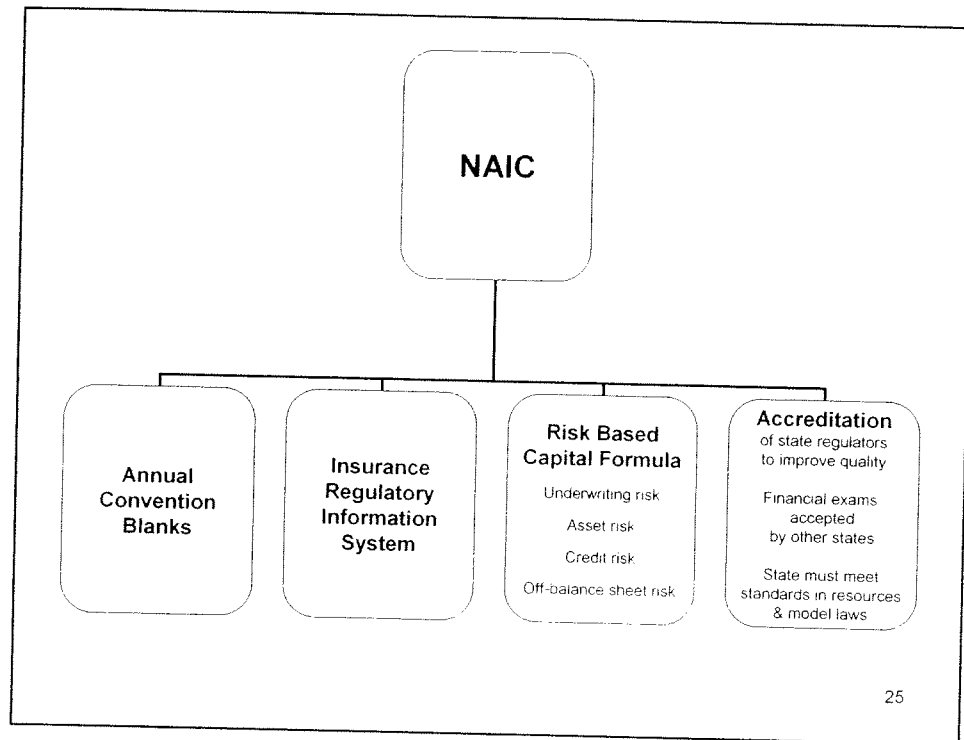
1944 – “Insurance **is** interstate commerce; the federal government shall regulate.”

1945 – “Authority to regulate insurance is **granted** to the states, as long as they do a good job. Anti-trust laws still apply, except for data-gathering.”

...McCarran Ferguson still applies today.

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Financial Aspects of Insurance Companies

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L&H Income Statement

2009 L&H Industry Aggregate (000 omitted)

Premium	\$ 517,400,259
+ Investment Income	160,475,061
+/- Other Additions/Deductions	111,394,625
Total	\$ 789,269,945
- Death Benefits	- 58,344,398
- Annuity Benefits	- 64,906,015
- Disability Benefits	- 121,449,995
- Surrender Benefits & Withdrawals	- 231,012,882
- Commissions on Premiums	- 40,274,927
- General Expenses	- 55,316,253
+/- Other Additions/Deductions	- 185,397,914
- Federal Income Taxes	- 11,299,813
Net Income (Loss)	\$ 21,267,748

Best's Aggregates & Averages L&H, 2010 27

L&H Balance Sheet

December 31, 2009 L&H Industry Aggregate (000 omitted)

Assets	Liabilities
Bonds \$ 2,346,220,707	Reserves for life benefits \$ 2,167,590,359
Stocks 79,380,206	Reserves for A&H contracts 190,881,863
Mortgages on Real Estate 324,920,605	Separate Accounts 1,631,194,048
Cash & Short Term 123,423,399	Other Liabilities 649,336,916
Separate, Seg, Prot Accts 1,634,418,767	Surplus Notes \$ 26,327,702
Other Assets 512,487,130	Other Surplus 355,519,926

Best's Aggregates & Averages L&H, 2010

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P&C Income Statement

2009 P&C Industry Aggregate (000 omitted)

Earned Premium	\$ 430,626,969	
- Losses Incurred	- 259,012,585	
- Loss Adjustment Expenses	- 53,778,420	
- Underwriting Expenses	- 119,740,744	
+/- Other Additions/Deductions	710,427	
Underwriting Income (Loss)	\$ - 1,194,353	
+ Investment Income	50,562,922	
+ Realized Capital Gains	- 8,079,575	
+/- Other Additions/Deductions	- 1,532,005	
- Federal Income Taxes	- 8,408,792	
Operating Income (Loss)	\$ 31,348,197	

Commissions	\$ 44,451,211
Salaries	27,093,601
Taxes, Licenses, Fees	11,073,434
Other	37,122,498
Total Underwriting Expense	\$ 119,740,744

Best's Aggregates & Averages P&C, 2010

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P&C Balance Sheet

December 31, 2009 P&C Industry Aggregate (000 omitted)

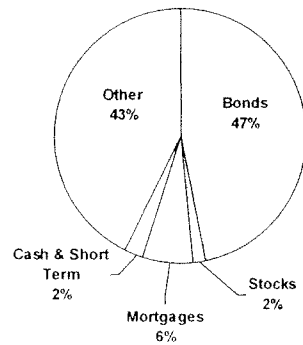
Assets		Liabilities	
Bonds	\$ 903,367,754	Loss & LAE Reserves	\$ 592,797,157
Stocks	230,343,555	Unearned Premiums	200,192,263
Mortgages	4,705,114	Other Liabilities	216,597,361
Cash & Short Term	93,046,276	Surplus Notes	\$ 14,681,265
Other Assets	348,722,235	Other Surplus	516,927,197

Best's Aggregates & Averages P&C, 2010

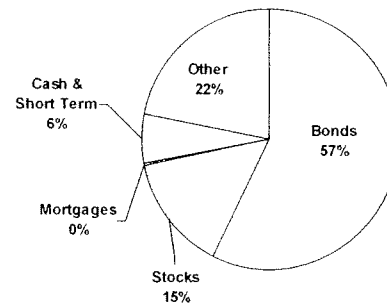
30

Asset Profile Comparison

Life & Health



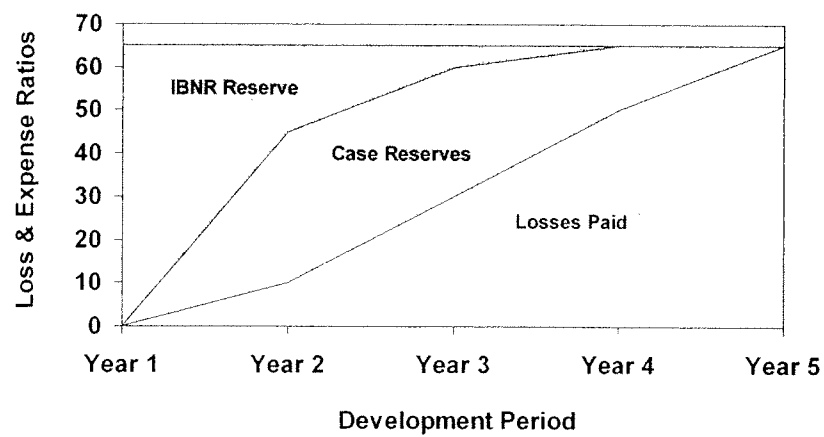
Property & Casualty



Best's Aggregates & Averages P&C, 2010

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Loss Reserving



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Loss Development – Historical Pattern

Workers' Compensation Cumulative Paid Net Losses, Defense & Expenses Reported at Year End										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
2000	4,810,889	10,689,208	14,009,074	16,141,579	17,433,983	18,234,113	18,862,518	19,269,104	19,673,764	19,905,904
2001	XXX	4,188,919	9,270,786	12,164,516	13,911,548	14,977,541	15,771,386	16,258,572	16,754,117	17,019,363
2002	XXX	XXX	3,892,327	8,595,313	11,206,258	12,695,825	13,751,393	14,368,721	14,868,971	15,219,136
2003	XXX	XXX	XXX	3,740,792	7,969,092	10,265,668	11,848,646	12,718,847	13,409,744	13,847,830
2004	XXX	XXX	XXX	XXX	3,872,482	8,176,206	10,713,907	12,189,899	13,227,010	13,826,773
2005	XXX	XXX	XXX	XXX	XXX	3,963,810	8,882,933	11,507,359	13,180,496	14,216,182
2006	XXX	XXX	XXX	XXX	XXX	XXX	4,560,262	9,449,951	12,461,674	14,123,643
2007	XXX	XXX	XXX	XXX	XXX	XXX	XXX	4,085,499	9,530,436	12,819,511
2008	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	4,522,839	10,487,961
2009	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	4,409,928

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Calculating Loss Development

Fill in the empty cells:

	0-12 months	12 to 24 months	24 to 36 months	36 to 48 months	48 to 60 months
2005	5	10	15	10	5
2006	5	10	15	10	
2007	5	10	15		
2008	5	10			
2009	5				

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Calculating Loss Development & IBNR

Step 1 Gather Data					
Accident Year	After 12 Months	After 24 Months	After 36 Months	After 48 Months	After 60 Months
2005	3,963,810	8,882,933	11,507,359	13,180,496	14,216,182
2006	4,560,262	9,449,951	12,461,674	14,123,643	1-Year LD Needed
2007	4,085,499	9,530,436	12,819,511	2-Year LD Needed	
2008	4,522,839	10,487,961	LD Needed		
Step 2 Calculate change multiplier over time		4,409,928	Step 5 Adjust current loss data for future development		
Percentage Development					
Acc Year	12-24 ¹	24-36	36-48	48-60	
2005	2.24	1.30	1.15	1.08	
2006	2.07	1.32	1.13		
2007	2.33	1.35			
2008	2.32				
2009	-	Step 3 Calculate average multiplier:			
Step 4 Calculate Loss Development factors:		1.32	1.14	1.08	
1-Year LD Factor = 1.08 = 1.08					
2-Year LD Factor = 1.14 X 1.08 = 1.23					
3-Year LD Factor = 1.32 X 1.14 X 1.08 = 1.63					
4-Year LD Factor = 2.24 X 1.32 X 1.14 X 1.08 = 3.64					
Year	Reported Losses	LD Factors	Developed Losses		
2005	14,216,182	X 1.00 ²	=	14,216,182	
2006	14,123,643	X 1.08	=	15,253,534	
2007	12,819,511	X 1.23	=	15,767,998	
2008	10,487,961	X 1.63	=	17,095,376	
2009	4,409,928	X 3.64	=	16,052,137	
Totals	56,057,225			78,385,227	
2 ³ Oldest data is assumed to be fully mature					
Step 6 Subtract total reported from total developed for IBNR ³					78,385,227
					- 56,057,225
					IBNR = 22,328,002
3 ³ Incurred But Not Reported					

¹24 month loss - 12 month loss

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Claims Reserves as a % of Premium Earned 2006

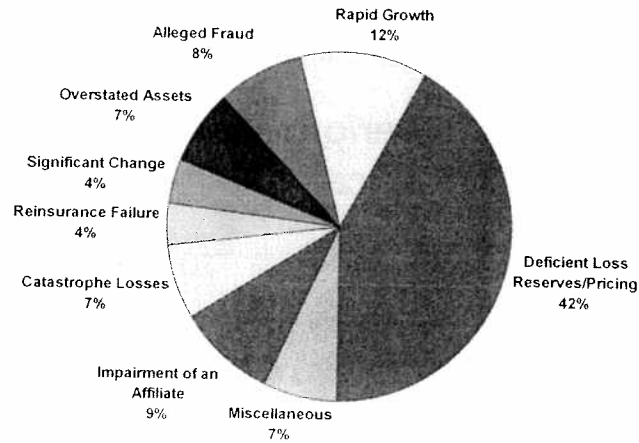
Line of Business	Reserves as % of Premium
Property	63%
Auto Physical Damage	7%
Auto Liability	97%
General Liability	283%
Medical Malpractice	303%
Product Liability	451%
All Property Casualty Lines	124%

sigma, www.swissre.com

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Causes of Primary Insurer Impairments

US Property & Casualty Insurers 1976 - 2009

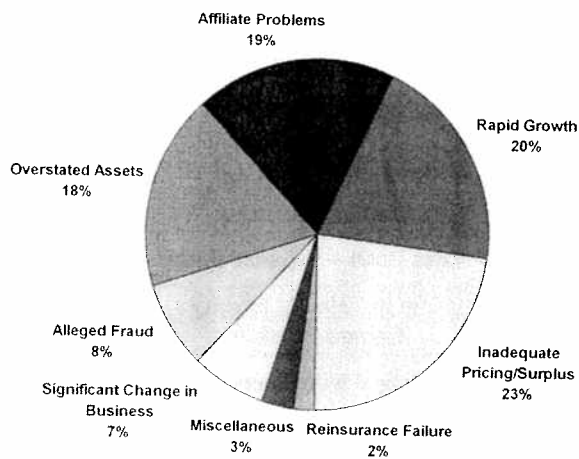


Best's Special Report - Surplus Lines Market 2010, A.M. Best, 2010

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Causes of Primary Insurer Impairments

US Life & Health Insurers 1976 - 1991



Best's Insolvency Study L/H Insurers 1976-1991, A.M. Best, 1992

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Financial Performance of the Insurance Industry

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Key P&C Ratios

Ratio	Calculation	Target Values
Loss	$\frac{\text{Incurred Losses} + \text{Loss Adjustment Expenses}}{\text{Earned Premiums}}$	$\leq 70\%$
Expense	$\frac{\text{Underwriting Expenses}}{\text{Written Premiums}}$	$\leq 25\%$
Combined	Loss Ratio + Expense Ratio	$< 100\%$
Investment Income	$\frac{\text{Net Investment Income}}{\text{Earned Premium}}$	$\geq 10\%$
Operating	Combined Ratio – Investment Income Ratio	$< 100\%$
Capacity	Written Premiums/Policyholder's Surplus	$< 200\%$

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Combined Ratio

Measure of Underwriting Profitability

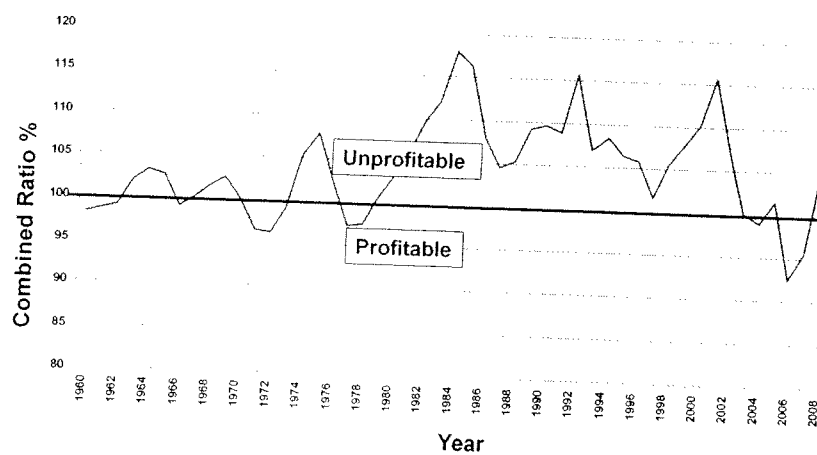
$$\text{Combined Ratio} = \text{Loss Ratio} + \text{Expense Ratio}$$

$$\text{Combined Ratio} = \frac{\text{Incurred Losses}}{\text{Earned Premium}} + \frac{\text{Underwriting Expenses}}{\text{Written Premium}^*}$$

*Trade Basis

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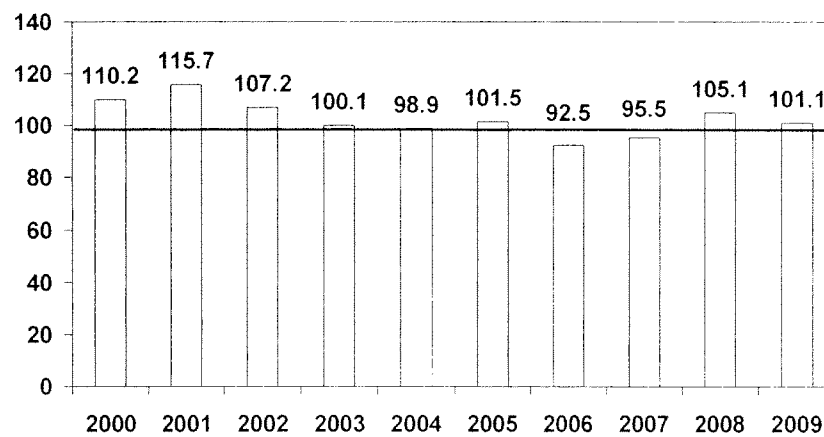
U.S. P&C Combined Ratio



Best's Aggregates & Averages P&C, A.M. Best, 2010

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U.S. P&C Combined Ratio



Best's Aggregates & Averages P&C, A.M. Best, 2010

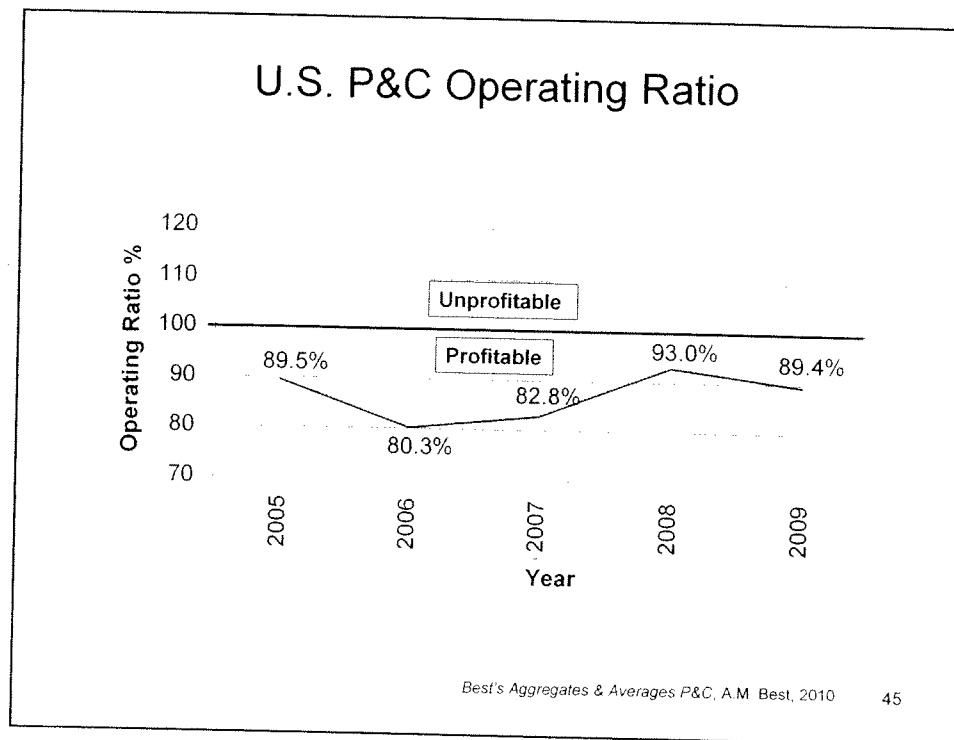
43

Operating Ratio

Measure of Overall Profitability

$$\text{Operating Ratio} = \text{Combined Ratio} - \frac{\text{Net Investment Income}}{\text{Earned Premium}}$$

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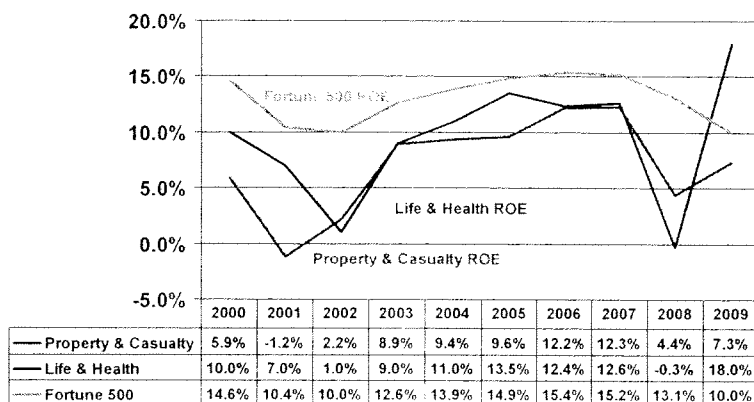
Return on Equity

For an insurance company: "Return on *Policyholders' Surplus*"

$$ROE = \frac{\text{Overall after-tax profit (includes underwriting, investment income, \& unrealized capital gains)}}{\text{Policyholders' Surplus}}$$

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Return on Equity



Best's Aggregates & Averages P&C and L&H 2010, Insurance Information Institute, 2010

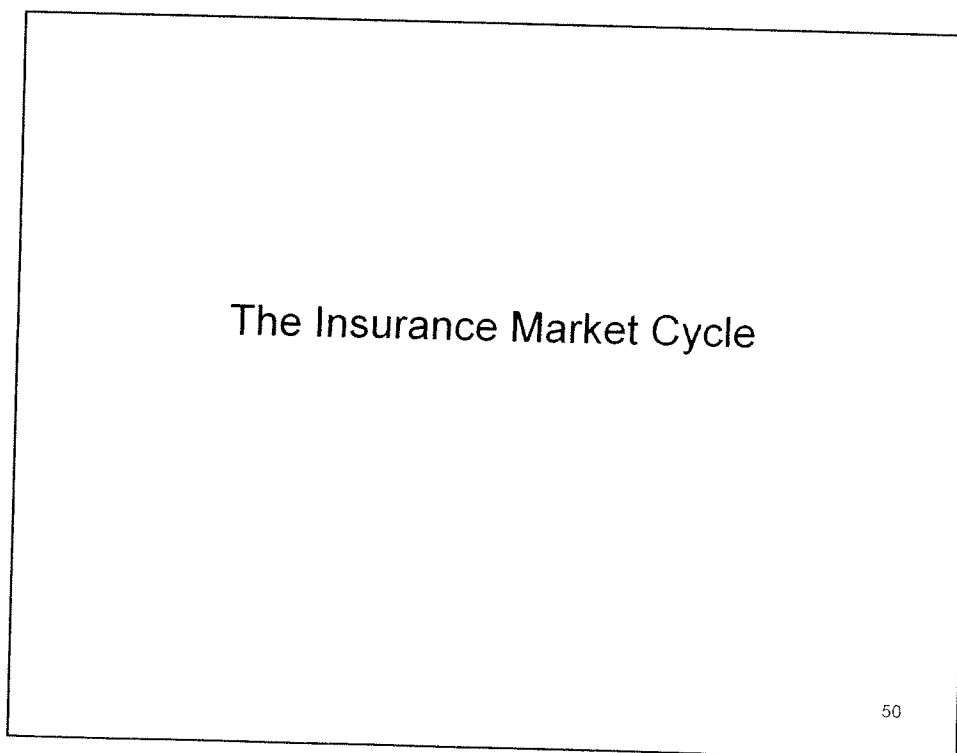
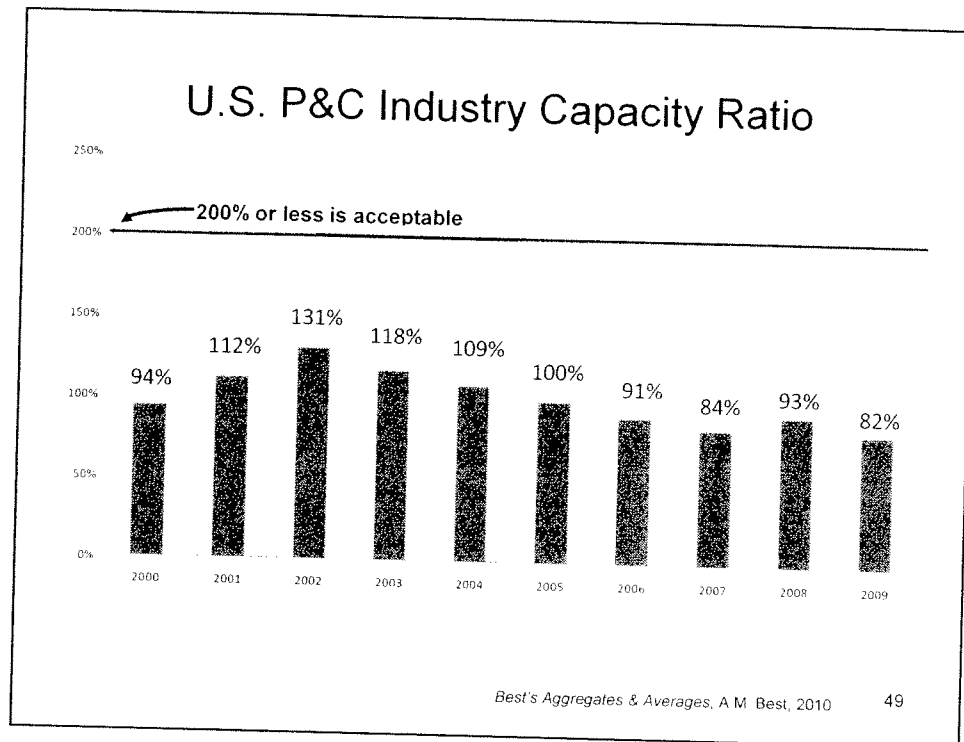
47

Capacity Ratio

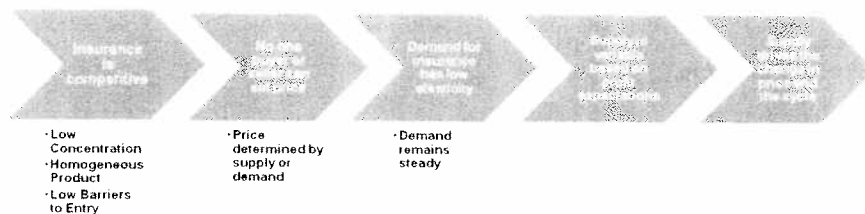
Measure of Solvency

$$\text{Capacity Ratio} = \frac{\text{Written Premium}}{\text{Surplus (Net Worth)}}$$

48

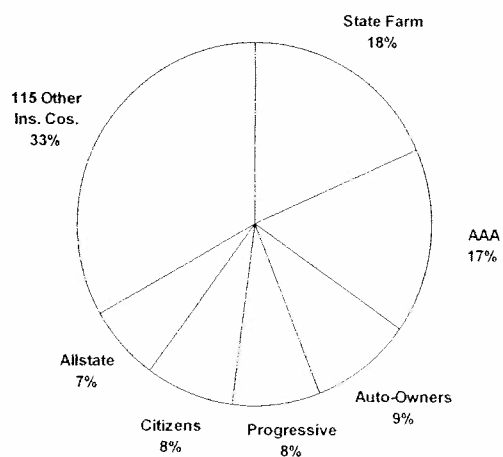


The Economics of Insurance



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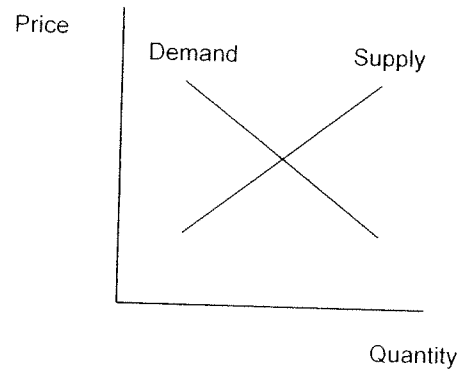
Michigan Auto Insurer Market Shares in 2007



A M Best's State/Line Report, A M Best Company, 2008

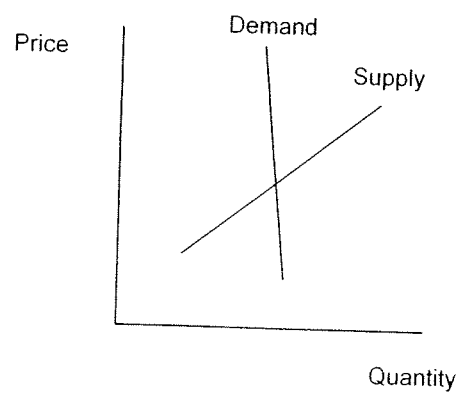
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Supply & Demand in Most Businesses



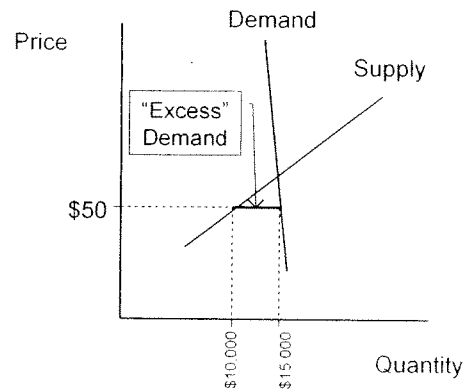
53

Supply & Demand in Insurance



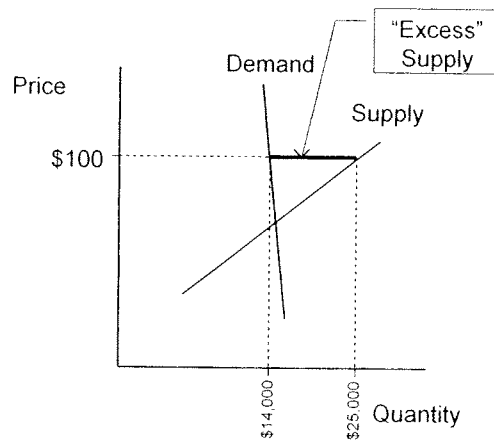
54

Supply & Demand in Insurance



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Supply & Demand in Insurance



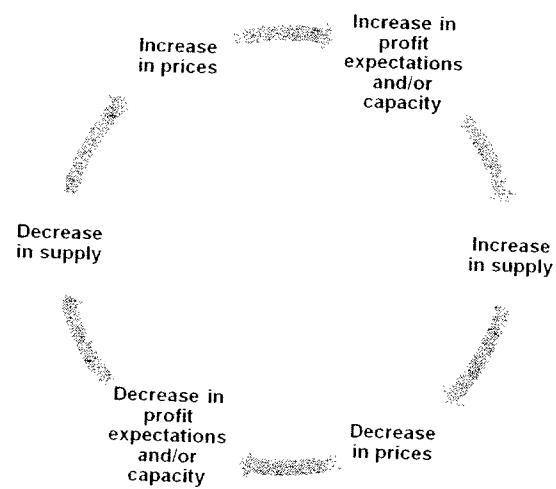
56

The Cycle

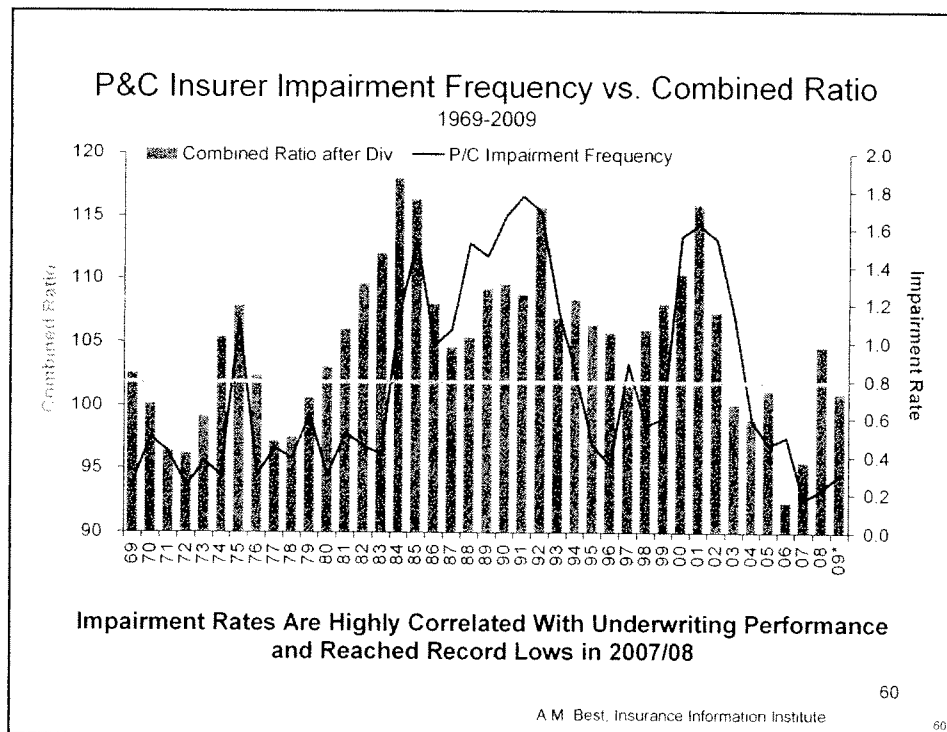
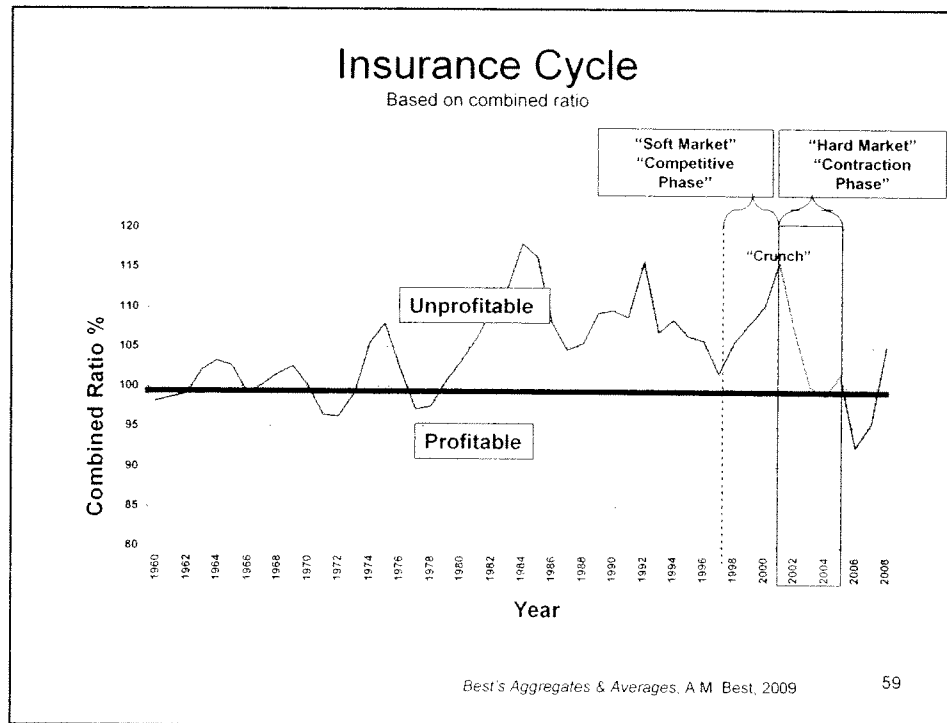


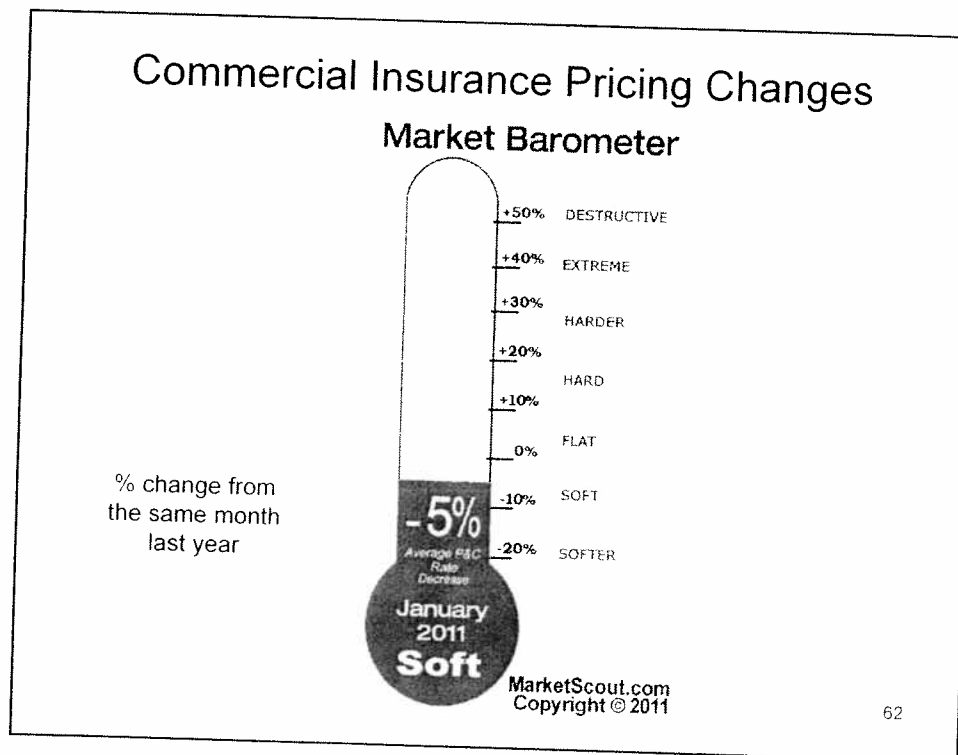
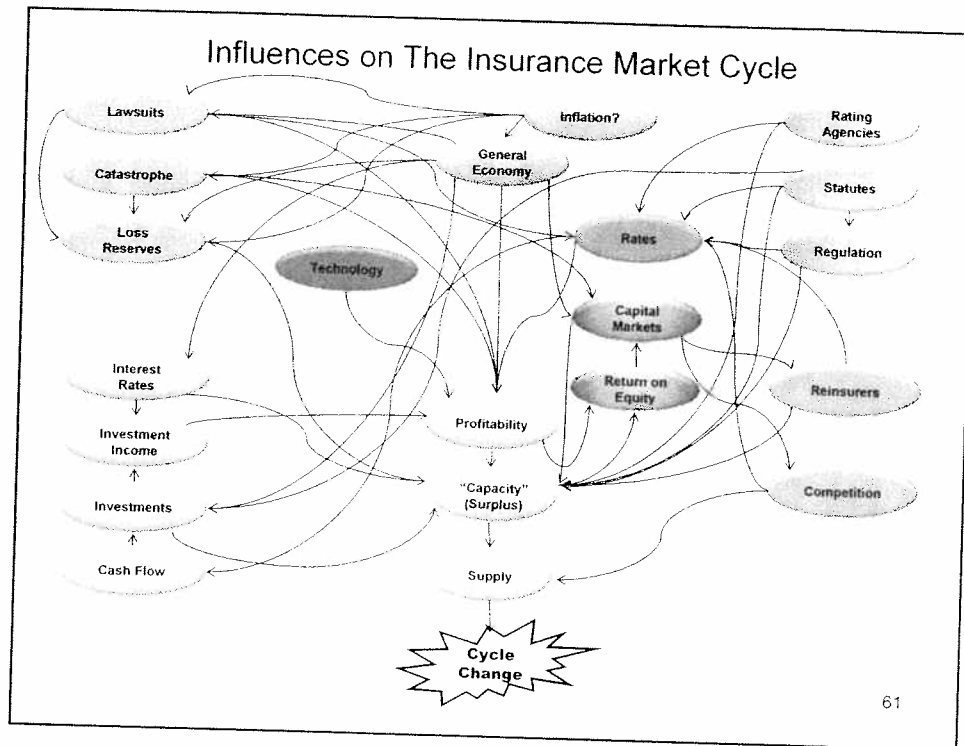
57

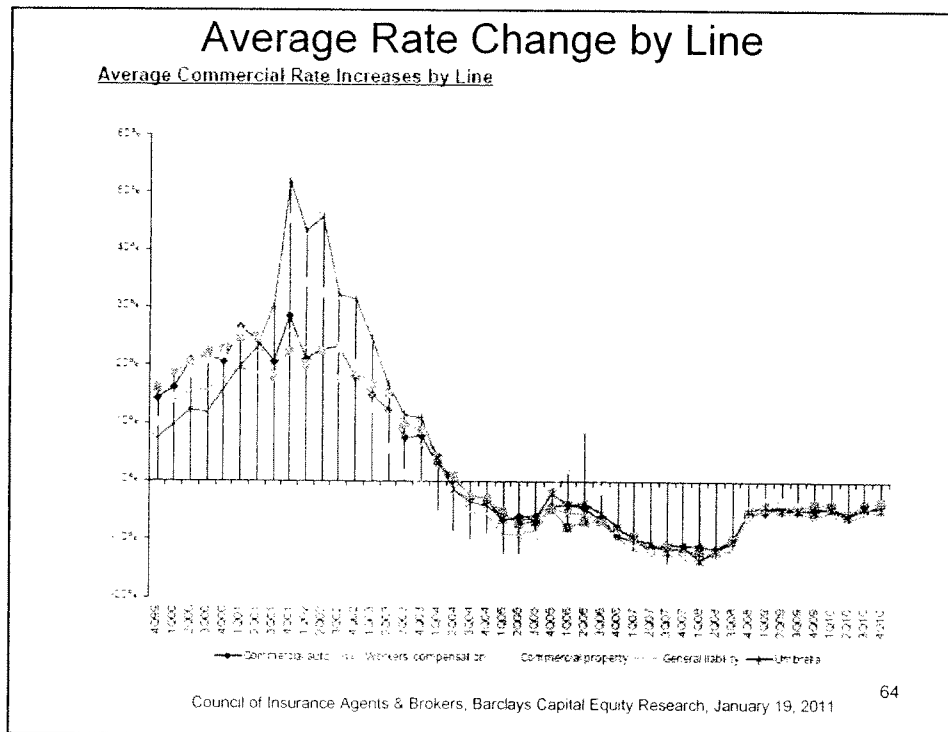
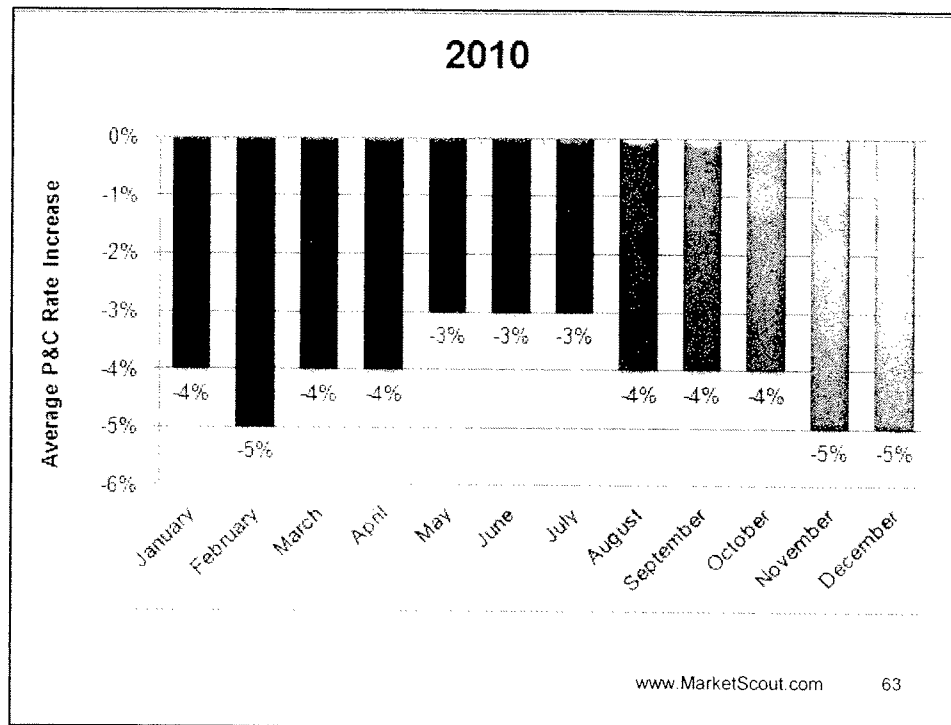
The Cycle



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Generic Health Insurance Policies

Many variations exist

Hospital Expense

For medical expense during a hospital stay

- Indemnity – reimbursements for actual amounts
- Valued – fixed amount for each day of hospital stay
- Service – full cost of a certain level of service (e.g. semi-private room for a limited number of days)

Surgical/Physician's Expense

Surgical Coverage Approaches:

- Surgical Schedule – fixed amounts
- Relative-Value Schedule – amounts vary geographically
- Reasonable & Customary Charges

Physician's Expense – for non-surgical care

Major Medical

for catastrophic illness/injury

- Few exclusions
- High maximum limits
- Deductible
- Coinsurance

Other health policies

Disability Income

Loss of income during recovery

Long-term Care

Medical/custodial care in nursing facility or home

Dental

Vision

Alternatives

- Blue Cross
- Blue Shield
- HMOs
- PPOs
- POS

